

In re Patent Application of:  
**GAILHARD ET AL.**  
Serial No. 10/021,282  
Filing Date: OCTOBER 30, 2001

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#### REMARKS

Applicants would like to thank the Examiner for the thorough examination of the present application. Applicants would also like to thank the Examiner for allowing Claims 36-42 provided minor claim informalities are corrected, and for indicating as allowable the subject matter of dependent Claims 19-20, 22-23, 25-35, 44, 46-47, 49 and 51-52.

The claim informalities have been corrected as helpfully noted by the Examiner. "N-bit" has been inserted before "control number" where applicable throughout the claims. However, please note that the following items actually have proper antecedent basis. In Claim 28, "the first control signal" has antecedent basis in Claim 27, from which it is dependent. In Claim 41, "the first control signal" has antecedent basis in Claim 40, from which it is dependent. In Claim 44, "the least significant bits" has antecedent basis in Claim 43, from which it is dependent. In Claim 48, "the providing" on line 15 has antecedent basis on line 9 in the same claim. In Claim 53, "the desired period" has antecedent basis in Claim 48, from which it is dependent.

Independent Claims 18, 43 and 48 have been amended to more clearly define the present invention over the cited prior art references. The claim amendments and arguments supporting patentability of the claims are presented in detail below.

#### I. The Claims Are Patentable

Independent Claims 18, 43 and 48 have been rejected over the Arai patent. The present invention, as recited in amended independent Claim 9, for example, is directed to a

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signal generator comprising an oscillator for providing an output signal from an N-bit control number, with N being an integer greater than 1. The oscillator comprises a first group of cells, with each cell comprising at least one inverter. A first selection circuit is connected to the first group of cells for selecting a number of cells as a function of predetermined most significant bits of the N-bit control number. A second group of cells are connected in parallel to one another, with each cell comprising at least one inverter. A second selection circuit is connected to the second group of cells for selecting one of the cells within the second group of cells as a function of predetermined least significant bits of the N-bit control number. Selected cells of the first and second groups are connected in series to form a chain of inverters.

Referring now to the Arai patent, and in particular to FIG. 1c, a ring oscillator comprises a first group of cells 2 and 5 with a first selection circuit 15 connected thereto, and a second group of cells 1 and 7 with a second selection circuit 17 connected thereto. Each cell includes at least one inverter, and an up/down counter 60 provides a control number for selecting a number of cells within the first and second groups of cells via the first and second selection circuits 15, 17.

However, the second group of cells 1 and 7 in the Arari patent are connected in series with respect to one another. Independent Claim 18 has been amended to recite that the cells in the second group of cells are connected in parallel with respect to one another. Support in the specification may be found on page 11, lines 31-32, and as

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illustrated in FIG. 4. Consequently, Arari teaches away from the claimed invention because the second group of cells are connected in series.

The second selection circuit, as recited in Claim 18, is connected to the second group of cells for selecting one of the cells within the second group of cells as a function of predetermined least significant bits of the N-bit control number. Since the second groups of cells are connected in parallel, the second selection circuit advantageously selects one of the cells so that it is connected in series with the first group of cells. Since the second group of cells may comprise two different cells having different propagation times for a first logic value and a second logic value, as recited in dependent Claims 21 for example, the signal generator is able to advantageously produce a high-frequency signal from a low-frequency signal.

Accordingly, it is submitted that amended independent Claim 18 is patentable over Arari. Independent Claims 43 and 48 have been amended similar to independent Claim 18. Therefore, it is submitted that these claims are also patentable over Arari. In view of the patentability of the independent claims, it is submitted that their dependent claims, which recite yet further distinguishing features of the invention, are also patentable. These dependent claims require no further discussion herein.



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**CONCLUSION**

In view of the amendments to the claims and the arguments provided herein, it is submitted that all the claims are patentable. Accordingly, a Notice of Allowance is requested in due course. Should any minor informalities need to be addressed, the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,

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**CERTIFICATE OF MAILING**

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